

REMARKS

I. Claim Status

Claims 1-12 are pending in the present Application and stand rejected. Clarification is respectfully requested on the claims rejected the Office Action. The Office Action states claims 1-7 are rejected; it is unclear whether the Examiner means Claims 1 and 7 are rejected. If so Claims 2-6 and 8-12 should be allowable if written in independent form or whether the Examiner meant to reject claims 1 through 7 and have claims 8-12 allowable if written in independent form or if the Examiner meant to reject claims 1-12.

The currently pending claims are presented as a courtesy to the Examiner. No new matter has been added.

II. Claim Rejections

a) Under 35 U.S.C. § 103(a)

Claims 1-7 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over Kim, KR 1020000014672 (machine translation) in view of Morigaki, et al., U.S. Patent No. 6,821,675. The Examiner contends that Kim allegedly teaches an anode active material slurry comprising: (a) a carbon-based anode active material capable of lithium ion intercalation/deintercalation (Li-ion secondary battery); (b) a conductive agent; (c) a binder comprising a styrene-butadiene- based polymer resin; (d) a thickener comprising cellulose and (e) water. The Examiner acknowledges that Kim does not teach for Claim 1 and its dependant claims 2-6 a dispersant comprising a polymer backbone capable of surface -adsorption and a side chain having non-ionic surfactant properties; nor the dispersant ranges nor the polymer backbone in the dispersant being PMMA or PVdF; nor the side chains having non-ionic surfactant properties in the dispersant as claimed; nor that the dispersant is a copolymer formed of polymethylmethacrylate and polyethylene oxide; nor that the dispersant has a weight average molecular weight ranging from 10,000 to 30,000; nor a lithium secondary cell comprising an anode obtained by using the anode

active material slurry according to the instant claim 1. The Examiner further acknowledges for Claim 7 and its dependant claims 8-12 that Kim does not teach a lithium secondary cell where the content of the dispersant ranges from 0.01wt% to 10 wt% based on the total weight of the anode active material slurry; nor the polymer backbone in the dispersant being PMMA or PVdF; nor the side chains having non-ionic surfactant properties in the dispersant as claimed; nor that the dispersant is a copolymer formed of polymethylmethacrylate and polyethylene oxide; nor that the dispersant has a weight average molecular weight ranging from 10,000 to 30,000. The Examiner contends that Morigaki et al. allegedly teach a polymer backbone in the dispersant that is polyethylene oxide. The Examiner concludes that it would be obvious to insert the teachings of Morigaki et al. into Kim since Morigaki et al. allegedly teach that polyethylene oxide is used as a binder when dispersed in the electrode slurry. Applicants respectfully traverse this rejection.

The electrode active material slurry using a binder comprising a styrene-butadiene-based polymer resin and a thickener comprising a cellulose-based or an acrylate-based resin has difficulties in dispersion thereof due to the difference of the specific gravity of the carbon-based electrode active material and those of the binder and thickener.

For the purpose of solving the above problem; and the purpose of improving the dispersion properties of the inert carbon-based anode active material and/or carbon-based conductive agent, the feature of the present invention is to use a dispersant characterized by comprising (a) a polymer backbone capable of physically bonding, i.e., adsorption, to the surface of carbon and (b) a side-chain having surfactant properties required for dispersion, in the same molecule. See the descriptions on page 3, line 29 to page 4, line 10 and page 7, line 2 to page 8, line 10 and FIGs. 1 and 2 of the instant Specification.

Such a technical feature of the present invention and the object/effect thereof are neither described nor suggested in Kim or Morigaki alone or in combination. As described in claims 1, 12 and 16, TABLE 1, the negative electrode material of Morigaki

excludes carbon as a component, unlike the present invention.

In order that the dispersant accomplishes the above-described purposes of the present invention, (a) a polymer backbone capable of adsorption to the surface of carbon and (b) a side-chain having surfactant properties required for dispersion must be present in one molecule. Such a technical feature of the present invention is neither described nor suggested in Kim or Morigaki alone or in combination.

As described above, the dispersant of the present invention is totally different from the compounds/polymers suggested in the cited references in terms of constitution, the mechanism and the problem to be solved. Accordingly, the present invention is not obvious over Kim or Morigaki alone or in combination. Reconsideration and withdrawal of this rejection is respectfully requested.

III. Conclusion

It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly, reconsideration and allowance are requested.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130.

Respectfully submitted,
CANTOR COLBURN LLP

By /Nicholas J. Sisti/
Nicholas J. Sisti
Registration No. 54,453

Date: September 2, 2008
CANTOR COLBURN LLP
20 Church Street, 22nd Floor
Hartford, CT 06130-3207
Telephone (860) 286-2929
Facsimile (860) 286-0115
Customer No.: 23413